JOHN H. GLENN RESEARCH CENTER
ENVIRONMENTAL MANAGEMENT OFFICE
CHEMICAL MANAGEMENT TEAM

HAZCOM PROGRAM

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INTRODUCTION

OSHA HAZARD COMMUNICATION STANDARD

The Occupational Safety and Health Administration (OSHA) codified the Hazard Communication rule in Title 29, Code of Federal Regulations (CFR), Part 1910.1200. This final rule applies to workplaces where employees are exposed to hazardous chemicals. On July 25, 1986, OSHA ruled that, pursuant to Executive Order 12196, all Federal agency heads were required to comply, by May 23, 1988, with the OSHA Hazard Communication Standard.

The Hazard Communication (HAZCOM) Standard also defines the need for each covered facility to develop a Written Hazard Communication Program (29 CFR 1910.1200(e)). This document, the NASA Glenn Research Center HAZCOM Program, fulfills the requirements for a written program specified in the OSHA standard.

NASA GLENN RESEARCH CENTER HAZARD COMMUNICATION POLICY

The Glenn Research Center Environmental Programs Manual, Chapter 23, outlines the Center's policy about Hazard Communication. The definition of the authorities and responsibilities are in a manner that allows flexibility to adjust the program to the specific needs of each work area.

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This document establishes the NASA Glenn Research Center (GRC) written hazard communication program. GRC satisfies the OSHA requirements for a written hazard communication program by:

1. Describing how GRC manages labels and other forms of warning (Chapter 3.0);
2. Describing how GRC manages material safety data sheets (MSDS's) (Chapter 1.0);
3. Describing how GRC manages employee information and training (Chapter 4.0); and
4. Providing a list of hazardous chemicals (Chapter 2.0).

Other requirements for a written hazard communication program are described in other sources. These details can be found in the following areas:

1. Methods for informing employees of the hazards of non-routine tasks - Glenn Safety Manual Chapters on Safety Permits (1A), Confined Space Entry (16), Lockout/Tagout (9), and others as appropriate and
2. Requirements for Multi-employer workplaces - all on-site support service contractors and tenant organizations are expected to follow all GRC health, safety and environmental policies, including HAZCOM. Employees of on-site support service contractors and tenant organizations are offered access to all of the same information as the NASA civil servants. This includes access to MSDS', safe work practices/precautionary measures and information about the GRC labeling system.

The HAZCOM Program is a regular, continuing effort, not merely a standby or short-term activity. As stated above, all GRC civil service employees at Lewis Field and Plum Brook Station, along with tenant organization employees and on-site support service contract employees are expected to follow its recommendations. This Program is designed to meet the requirements of 29 CFR 1910.1200(e): Written hazard communication program. The GRC HAZCOM Officer will review this program annually to ensure that the procedures continue to meet the needs of the Center and comply with current regulations.

Change Record

Rev.	Effective Date	Description
D	8/22/03	Revision
E	12/22/03	Revision

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CHAPTER 1 - MATERIAL SAFETY DATA SHEET PLAN

Purpose
The purpose of the Material Safety Data Sheet (MSDS) Plan is to define the methods of receiving, tracking, and managing MSDS's for the Glenn Research Center (GRC).

Scope
The scope of the MSDS plan is for all hazardous chemicals used by employees at GRC including civil servants, tenants and contractors at both Lewis Field and the Plum Brook Station.

MSDS Program

Obtaining Material Safety Data Sheets (MSDS's)
MSDS's are obtained from the supplier at the time of delivery. The MSDS is sent by chemical receiving to the requestor with the hazardous chemical as well as a copy sent to the Chemical Management Team (CMT) for the central file. The paper copy is maintained in the GRC central files by the CMT. The MSDS is also scanned and placed into an electronic database for distribution. GRC does not conduct an additional hazard determination for incoming chemicals. The information on manufacturers' MSDS's is accepted as adequate.

MSDS's are available to all GRC personnel from the NASA GRC web site: http://msds.grc.nasa.gov/. The on-line MSDS web site is maintained by the CMT.

GRC personnel may request MSDS's that are not on the MSDS web site through the GRC Intranet (URL address: http://forms.grc.nasa.gov/Forms/PublicUser/index.cfm, Material Safety Data Sheet (MSDS) Request (NASA C-377 form)). All requests for MSDS's are documented by CMT using date received and date delivered.

MSDS binders may be maintained by the chemical users. The use of the MSDS binder is only needed if electronic access is not available. The binder is not an official document maintained by the CMT. CMT provides the MSDS's as needed or requested for each binder. CMT will assist the person responsible for maintaining a current MSDS binder. However, the full responsibility for maintaining the MSDS binder falls on the user. CMT also audits the MSDS binders. The MSDS binders are not the official source for MSDS's for hazardous chemicals. The official source for MSDS's is the GRC MSDS web page. The MSDS binders may contain outdated materials and must be updated as new MSDS's are released to ensure that the MSDS's are available for the hazardous chemicals in the work area.

GRC personnel may request an MSDS from the CMT through the GRC Intranet URL address listed previously. GRC personnel may obtain MSDS information from NASA GRC web site: http://msds.grc.nasa.gov/. The online MSDS web site is maintained by the CMT.

GRC Generated MSDS's
All materials that are generated by employees at the Center and which leave the center, are transferred to other people in the Center or are transferred between Lewis Field and Plum Brook Station must have an MSDS. If no MSDS exists for the material, one must be written before the material is allowed to change locations.

Form NASA-C10007 is to be completed by the creator of the material with a copy of the MSDS for each raw material and sent to CMT for review. The NASA-C10007 can be obtained from the NASA GRC web site: http://forms.grc.nasa.gov/Forms/PublicUser/index.cfm.

A review team from the Environmental Management Office consisting of CMT and Industrial Hygiene Team, at minimum, shall review the information on the C10007 Form. A NASA MSDS number will be assigned to the completed MSDS. No MSDS without a NASA MSDS number is valid. The approved MSDS will then be returned to the originator and a copy is kept on file within the CMT.

All NASA generated MSDS's will be reviewed by CMT every three years to determined if the material is still active and whether the MSDS needs to be updated. All NASA generated MSDS's will be updated as soon as possible after new information becomes available on applicable chemicals.

Material Safety Data Sheets Storage
The CMT maintains the central MSDS file for all hazardous chemicals at GRC. All GRC MSDS's are stored in a computer database. The database stores the images of the MSDS.

The master MSDS's file cabinets are kept in basement of Building 6. The cabinets contain over 14,000 MSDS's. CMT maintains the MSDS master files.

Updating MSDS's
MSDS's are updated whenever a new MSDS is received. The MSDS's on file are reviewed by CMT every three years to ensure that each MSDS is the most current available.

Responsibilities

Chemical Management Team
- Obtain and maintain the central MSDS files.
- Scan and maintain all MSDS's in the GRC database.
- Assist the supervisors or chemical users with updated MSDS's for their binders.
- Train employees and supervisors on MSDS's and the MSDS program.

Supervisors
- Ensure that, where available, employees have access to the GRC MSDS's web site during all work shifts.
- Ensure that employees have read and understood the information on the MSDS for all hazardous chemicals that the employee will encounter at the work site.
- Ensure that any MSDS binders in the work area are up to date.
- Ensure that copies of all MSDS's are sent to the CMT.

Chemical Users
- Know how to access the MSDS's on line.
- If access to online MSDS's is not available, know where MSDS's are kept.
- Read MSDS's and understand the information needed to work with the hazardous chemicals safely.

Monitoring Program
The MSDS plan shall be reviewed annually. Client binders shall be inspected on a random basis for completeness and accuracy. The MSDS central files shall be kept current. The GRC MSDS online database shall be kept current.

Employee Training
Employees shall be trained on the availability and location of MSDS's. The employee shall also be trained on how to be able to read the MSDS to enable safe working with the hazardous chemicals in the work area. Initial training must be conducted before working unsupervised with any hazardous chemical. Refresher training should be attended at least once every three years for employees with routine chemical exposures.

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CHAPTER 2 - CHEMICAL INVENTORY PLAN

Purpose

The purpose of the chemical inventory plan is to establish how hazardous chemicals will be tracked and managed at the NASA Glenn Research Center (GRC). This plan applies to ensure the accuracy of the Chemical Inventory Management System (CIMS), which supports the Hazard Communication Program at GRC. The Safety and Assurance Directorate (SAAD) Annual Operating Agreement (AOA) supports the commitment of GRC to have an accurate inventory by an agreement with NASA Headquarters.

Scope

The scope of the Chemical Inventory Plan is applicable for all hazardous chemicals used by employees at GRC including civil servants, tenants and contractors at both Lewis Field and the Plum Brook Station.

Inventory Requirements

Receipt of Chemicals

Chemicals are shipped to the users from two locations: store stock supply and chemical receiving. Both operations are a part of the Logistics and Technical Information Division of GRC. Chemicals that are shipped to the end user from store stock are bar-coded before shipment and a copy of the barcode with the chemical name, requestor name, and destination are sent to the Chemical Management Team (CMT) for entry into the database. Chemicals sent from receiving are also bar coded and a copy of the bar code with a copy of the Order for Supplies document are sent to CMT for database entry.

Personnel Training and Certification

Individuals performing field audits at GRC are required to have, at minimum, General Hazard Communication Training, Personal Protective Equipment (PPE) Training, and General Laboratory Standard Training. The Hazard Communication Officer based on the conditions of the environment being inventoried may recommend additional training. Additional training may include Respirator Training, Hearing Conservation Training and Hazardous Waste Operations and Emergency Response Training.

Safety Precautions

Hazardous areas at GRC require an individual to wear proper PPE such as protective gloves, safety goggles, safety shoes, hard hats, earplugs and respiratory protective equipment while working in the area. CMT will determine what PPE is required for each work area that is being inventoried. All individuals involved in the process of inventory will comply with the specifications as required in the NASA GRC buddy system.

Tools, Equipment and Materials

The following tools, equipment and materials are required to perform field audits:
Handspring Visor Prism Personal Data Assistant (PDA);
Environmental Management Office, Chemical Management System;
Federal Barcode labels;
Pager or equivalent form of communication;
PPE (as required for work area); and
Building floor plans.

Instructions

Instructions on the proper procedures of the Chemical Inventory Management System are documented in the Chemical Management System's Manual that is maintained by CMT.

Method and Frequency

Annually, CMT performs a statistical audit to keep track of the inventory accuracy. CMT scans random buildings/rooms and takes the percentage of containers that already exist in the CIMS and compares it to the new container list.

Web Access
To maintain and manage the Chemical Inventory for the Center, a form NASA form C-3032 is provided on the http://forms.grc.nasa.gov/Forms/PublicUser/index.cfm website for the owners of chemicals to inform CMT of any containers disposed, transferred or moved at GRC.

CMT also structures a system to minimize the amount of containers stored at the Center. The Chemical Exchange Program is a way for researchers to get rid of any unused chemicals. Researchers that are in need of chemicals can obtain them through the Chemical Exchange Program. To request or offer a chemical to the Chemical Exchange Program, contact CMT.

Responsibilities

Chemical Management Team (CMT)
- Develop and maintain the chemical inventory system for tracking and identifying chemicals.
- Develop and maintain the chemical exchange program

Supervisor
- Ensure that employees are aware and follow the chemical inventory procedures.
- Ensure that CMT is notified of any changes in inventory due to disposal or transfer to another location.

Employee
- Provide chemical information to CMT for tracking.
- Notify CMT of any and all changes to the inventory due to disposal or transfer.

Logistic and Technical Information Division
- Barcode all hazardous chemicals before shipment to user.
- Provide CMT with information on bar-coded chemicals and name and location of users.

Waste Management Team (WMT)
- Provide CMT with information on all expired containers of hazardous chemicals scheduled for disposal

Monitoring Program
CMT shall monitor the effectiveness of the chemical inventory program and determine the accuracy of the inventory.

Employee Training
Employees shall be trained in the need for an accurate chemical inventory and on the methods the employee can use to communicate changes in the chemical inventory to the CMT.

Review Process
The Chemical Inventory Plan shall be reviewed by CMT annually.

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CHAPTER 3 - CHEMICAL LABELING PLAN

Purpose
The purpose of this Chemical Labeling Plan is to establish a program to identify and affix Hazard Communication (HAZCOM) labels on hazardous chemical containers in use by Glenn Research Center (GRC) employees, Support Service Contractors and other resident organizations. The HAZCOM labeling program ensures that the chemical name, an appropriate hazard warning and any required personnel protective equipment are all identified on the label for the user.

Scope
This plan applies to all on-site work locations at both Lewis Field and Plum Brook Station. The program is intended to consist of two phases:

- An initial labeling phase where all unlabeled containers of hazardous chemicals are labeled to meet HAZCOM requirements and
- A maintenance program to ensure continued compliance.

Labeling Program
Each chemical user is to ensure that labels on incoming containers of hazardous chemicals are not removed or defaced. Any employee handling hazardous chemicals shall notify the Chemical Management Team (CMT) when incoming containers require labeling.

Each laboratory worker is to ensure that a proper label is placed on all chemicals that the laboratory worker makes or stores. All personnel handling hazardous chemicals shall request appropriate labels from the CMT for use on incoming chemicals, single use or transfer containers if the chemicals are not properly labeled.

If the chemical substance is produced for another user outside of the laboratory, the laboratory employee shall comply with the Hazard Communication Standard (29 CFR 1910.1200) including the labeling requirements. An employee preparing samples for use by another laboratory shall request appropriate labels and MSDS's from the CMT and apply the labels prior to shipment.

Labels shall consist of the chemical identity or product name, which must match the name on the MSDS and the chemical inventory, and appropriate hazard warnings. This is accomplished with the CMT authorized labeling system described in this plan.

HAZCOM Labeling Criteria
All hazardous materials and chemicals to be used in the laboratory shall be properly labeled. Containers applicable to this plan are anticipated to comprise either single use, transfer containers, manufacturers' containers with damaged or removed labels, or Aboveground or Underground Storage Tanks (AST's/UST's).

Labels must be legible and specify the proper chemical or trade name and details concerning the hazard, such as: Flammability (Red Color Bar or Diamond); Health (Blue Color Bar or Diamond) and Reactivity (Yellow Color Bar or Diamond) as defined by the applicable Material Safety Data Sheet (MSDS). In addition, Target Organ Hazards (if available) along with the appropriate personnel protective pictograms must be present.

Exemptions to the above labeling include prepackaged manufacturers' containers authorized for shipment by the DOT, chemicals that contain mixtures, which may use generic labels, and Hazardous Waste containers governed by the Resource Conservation and Recovery Act (RCRA) labeling standards. The HAZCOM Officer will determine other exemptions.

Single Use/Transfer Container Labeling
HAZCOM warning labels shall be affixed to any bag, bottle, box, can, cylinder, drum, storage tank, or like container of hazardous chemicals. Labeling will specify all pertinent data as specified in the HAZCOM Labeling Criteria above.

Exemptions to container labeling will be those containers which due to physical limitation, cannot have all of the aforementioned hazard warnings, such as small chemical samples. Exempted containers must, however, be identified by some appropriate means; i.e., by chemical name as a minimum. All hazard data or appropriate MSDS must accompany the sample when shipped to another location.

Aboveground/Underground Storage Tank Labeling
All AST's/UST's containing hazardous chemicals will be labeled to meet HAZCOM requirements. AST's must have the National Fire Protection Association (NFPA) fire diamond displayed in a location on the tank clearly visible to employees and emergency responders, the proper chemical name, and a 7"x10" HAZCOM label (minimum size) for operating personnel describing the hazards and personnel protective equipment.

UST's will also be similarly labeled, except a metal sign, displayed in a location at or near the tank, shall be used to communicate all the pertinent hazard warnings. Tanks not affected by this plan include nonflammable gases or liquids, except cryogenic liquids, and nontoxic gases or liquids.

Labeling Review Process
The HAZCOM Officer shall review each label created by CMT for completeness and accuracy. CMT shall maintain review forms.

Labeling Equipment
The equipment planned to support this labeling program is a Varitronics EasyStep 4000 labeling system. The EasyStep 4000 is a compact sign and label maker that can print labels in 0.5-4.0 inch widths with scaleable fonts and bar codes. Right-to-Know information can be printed, as well a graphical image. GRC employees may request a Hazardous Chemical Label (C-375) from CMT from the GRC Intranet (URL address: http://forms.grc.nasa.gov/Forms/PublicUser/index.cfm).

EasyStep 4000 Users
The CMT shall manage and maintain control of the system. CMT Lead will determine authorized users.

Responsibilities:

Chemical Management Team
- Ensure that all hazardous chemical container labels are in compliance with this plan
- Perform an initial assessment of the work areas to determine work area labeling requirements.
- Perform audits to ensure labels for hazardous chemicals are in compliance.
- Supply labels for the containers.

Supervisors
- Ensure that hazardous chemicals are properly labeled.
- Notify CMT when labels are needed.

Employee
- Ensure that all containers are appropriately labeled.
- Identify chemical containers in need of labels.
- Notify CMT when label is needed.

Monitoring Program
The CMT, in conjunction with the Glenn Safety Office, will perform periodic audits to ensure compliance with this plan. The plan may be modified or updated based on the results of these audits.

Employee Training
The CMT will implement training in conjunction with the general HAZCOM training for GRC chemical users. The training should be refreshed at least once every three years for employees with routine chemical exposures..

CHAPTER 4 - HAZCOM TRAINING PLAN

Purpose
The purpose of the Hazard Communication (HAZCOM) training plan is to define the methods and availability for training for the Glenn Research Center (GRC) employees.

Scope
The scope of the HAZCOM Training plan is for all employees at GRC including civil servants, tenants and contractors at Lewis Field and the Plum Brook Station.

Training Requirements

General
The Chemical Management Team (CMT) provides all GRC civil servant personnel with general HAZCOM training on their initial assignment. General training consists of the Hazard Communication Standard, the contents of and how to read a Material Safety Data Sheet (MSDS), how to read labels, the GRC written policy and program, chemical inventory, and the people to contact for any applicable information regarding the standard. CMT provides the general HAZCOM training approximately 10 times a year. Each employee with routine chemical exposures should refresh HAZCOM training at least once every three years. Office personnel with only isolated exposures to chemicals do not need to attend refresher training.

Chemical Specific Training
GRC personnel must know about the hazards of the specific chemicals that they work with and safe handling and use of those chemicals. Supervisors are responsible for ensuring that the employees have the proper information and a safe work environment. CMTcan assist supervisors with specific chemical training.

Video Library
A library of HAZCOM related videos is available for use at the GRC Learning Center. Videos are reviewed regularly by the Learning Center and updated or expanded as needed.

Employee Training
CMT staff members who are responsible for training employees also attend training to develop and improve training skills.

Responsibilities

Hazard Communication Officer
- Ensure that the training materials are current and available to all employees.
- Ensure that employees and supervisors are trained.

Supervisors
- Ensure that employees are properly trained.
- Ensure that employees are trained before new chemicals are used.
- Ensure that new employees are trained before unsupervised work with hazardous chemicals.
- Ensure that employees know how to obtain an MSDS.

Employees
- Attend training as required.
- Do not work with chemicals unless aware of the hazards, personal protective equipment and apparel and proper emergency responses.

Support Service Contractors and Tenant Organizations
- Ensure that employees are properly trained.

- Ensure that employees are trained before new chemicals are used.
- Ensure that new employees are trained before unsupervised work with hazardous chemicals.
- Ensure that employees know how to obtain an MSDS.
- Notify CMT that employees have received appropriate training.
- Maintain training records for affected employees.

Organization Development and Training Office

- Maintain training records for civil servants.
- Ensure that proper facilities are available for training classes.

Monitoring Program

This training program shall be reviewed annually. Employees are interviewed after each training event to determine if training requirements have been met.